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APPENDIX A

METHODOLOGY

The index of producers equipment derived in this research aid is based on an aggregation of individual price-weighted time series for various categories of producers equipment. For the years 1955 through 1958 the index is based on a sample of 27 categories of producers equipment and 1 category of spare parts.* The link between 1958 and 1959 is based on a sample of 28 categories of equipment, the link between 1959 and 1960 is based on the 21 categories for which estimates are available for both years, and the 1960-61 link is based on 18 categories of equipment. The 1965 index is based on a link with 1958. In addition to the 18 categories used in the 1959-60 link, 3 additional categories for which gross production data are available were used in the 1958-65 link. The three additional categories are textile equipment, food processing equipment, and foundry equipment. 2/

The methodology used in deriving estimates of value for individual categories of equipment was as follows.

1. Metalcutting Machine Tools

The category of metalcutting machine tools was derived from physical production of the following types of machine tools: lathes; turret lathes; automatic and semiautomatic lathes; milling machines; gear cutting machines; boring machines; planers; slotters; broaching machines; grinding machines; tool grinders; vertical drills; radial drills; special, specialized, and unit-type machine tools; and other machine tools. Production of machine tools for each of the above classes for 1955 through 1959 is published in Soviet handbooks. 3/ The total production of machine tools for 1960 was reported in an official source, 4/ and production by type was estimated by extrapolation. Production for 1961 was estimated. The estimated physical production of machine tools by type in 1965 is based on official Soviet data. 5/

A representative model was selected for each of the types of machine tools for which production data are available with the exception of the special, specialized, and unit-type category. The 1955 price of each representative model was used to value production of the type that it represented. Because no representative model was available for the

* See Tables 3, 4, and 5, pp. 18, 20, and 21, respectively, below.

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special, specialized, and unit-type category, an arbitrary average price of 75,000 rubles* per unit was used.

2. Metallforming Machine Tools

The category of metallforming machines tools includes the following types of equipment: forging and drop hammers, presses, forging machines, power shears, straightening and bending machines, and other metallforming machines. The total physical production for 1955-60 is based on official Soviet publications, and production by type for 1955 was given in source 6/. Physical production for 1961 and 1965 was estimated. Average prices for each type are taken from source 7/.

3. Metallurgical Equipment

Production data for metallurgical equipment in metric tons are available for 1955 through 1960. Data also are available for the same period on the subcategory of rolling mill equipment. 8/ Production for 1961 and 1965 was estimated. An average price of 5,000 rubles (in 1955 prices) per ton of rolling mill equipment and 3,600 rubles per ton of other metallurgical equipment also was estimated.

4. Mining Equipment

The category of mining equipment includes the following types of equipment: coal combines, coal cutting machines, rock loaders, and electric mine locomotives. Production data in physical units were taken from official Soviet statistics. 9/ Weighted average 1955 prices for each type of equipment were taken from source 10/.

5. Petroleum Equipment

The category of petroleum equipment includes petroleum refining equipment, deep well pumps, and turbodrills. Data on physical production are published in official Soviet sources. 11/ Average 1955 prices are estimated.

6. Chemical Equipment

The category of chemical equipment is a gross production series that is reported in official Soviet publications for 1956-60. The estimate for 1955 is based on officially reported physical production. The estimates for 1961 and 1965 were made on the basis of recent trends in the industry. 12/

* Ruble values throughout this research aid are given in 1 July 1955 rubles (pre-1961 rate of exchange of 4 rubles to US \$1).

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7. Turbines

Production of turbines for 1955 through 1960, expressed in kilowatts of capacity, is from official Soviet statistics. 13/ Production for 1961 was estimated. The production plan for 1965 was announced by the USSR. 14/ The average price per kilowatt of capacity was estimated.

8. Steam Boilers

Production of steam boilers, expressed in tons of steam per hour of capacity, was published in official sources for 1955-59. 15/ No estimates for 1960 or 1965 are available. The average price per ton of steam per hour capacity was estimated.

9. Turbogenerators, Electric Motors, and Power Transformers

Physical production data covering all types of turbogenerators, electric motors, and power transformers for 1955 through 1959 and for generators and large motors in 1960, expressed in kilowatts of capacity, are available in official Soviet sources. 16/ Average prices per kilowatt of capacity for each type were estimated. The value of production of small motors in 1960 and 1961 and of turbogenerators, transformers, and all electric motors in 1961 and 1965 also was estimated.

10. Electric Bulbs

Physical production data for electric bulbs are available from official Soviet sources. 17/ The average price was estimated.

11. Industrial Electronic Equipment

The value of production of industrial electronic equipment was estimated.

12. Equipment for Light Industry

The category of equipment for light industry includes carding machines for cotton, spinning machines, reeling machines, looms, circular hosiery automatics, industrial sewing machines, fleshing machines, tying machines, type-setting machines, and flatbed printing machines. Physical production data for all the above types of equipment are available for 1955 through 1959 in official Soviet sources. 18/ Average prices for each type are estimated.

13. Civil Communications Equipment

The value of production of civil communications equipment was estimated.

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14. Construction Equipment

The category of construction equipment includes excavators, bulldozers, tractor scrapers, motor graders, towed graders, truck cranes, pneumatic tire cranes, tower cranes, and motor rollers. Production data for all of the above types of equipment are available for 1955-59 in official Soviet publications. 19/ Estimates of physical production for 1960 and 1965 were based on Soviet publications. 20/ Data for 1961 were estimated. Weighted average prices for each type, net of trucks and tractors, are from source 21/.

15. Agricultural Machinery

The scope of the category of agricultural machinery was estimated. Reported physical production by type of equipment was taken, for most years, from Soviet handbooks. Data for the remaining years was estimated. Representative prices for each type also were estimated.

16. Tractors

The production of tractors by model was estimated. Average 1955 prices, by model, also were estimated.

17. Motor Vehicles

The category of motor vehicles includes trucks, passenger automobiles, and buses. Physical production data for the total production in 1955-60 of trucks, passenger automobiles, and buses are from official Soviet publications. 22/ Production by model was based on source 23/. Prices by model were estimated.

18. Mainline Railroad Equipment

The category of mainline railroad equipment consists of individual subseries for steam locomotives, diesel locomotives, electric locomotives, freight cars, and passenger cars. The total production data covering the years 1955 through 1959 for these subseries and for production of locomotives in 1960 are available in official Soviet sources. 24/ Prices and production by model were estimated.

19. Civil Aircraft

Value of production of civil aircraft was estimated. Valuation was made by analogy with US experience and on the basis of learning curves.* The estimates exclude the value of electronic equipment but include the estimated value of initial spares.

* For an explanation of the use of the learning curve, see source 25/.

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20. Merchant Shipbuilding

The category of merchant shipbuilding is based on estimates of deliveries. Estimates were made of the average cost per ton for maritime, fishing, and non-self-propelled inland vessels and of the cost per horsepower for self-propelled inland vessels. These unit costs were multiplied by the physical volumes of deliveries to obtain value estimates. The estimates also include the value of repairs to maritime vessels. Because of the erratic pattern of the index, the estimates were smoothed by use of a 2-year moving average. It is believed that this smoothed index gives a better approximation to production in each year than does the unadjusted series based on deliveries.

21. Equipment Component of Capital Investment

The equipment component of capital investment for the years 1955 through 1959 was estimated as follows:

<u>Year</u>	<u>Billion 1955 Rubles</u>
1955	53.6
1956	66.3
1957	73.6
1958	82.8
1959	94.9

22. Instruments (Except Electronic), Textile Equipment, Food Processing Equipment, and Foundry Equipment

Data on these categories, which were used in the 1958-1965 link, were taken from Seven Year Plan announcements, except that the 1965 data for instruments are based on a later estimate of probable production. ^{26/} No information is available on the scope of the subcategories of food processing, textile, and foundry equipment. The original data on instruments include optical-mechanical instruments and apparatus, electrical and electronic measuring instruments, computer and mathematical machines, instruments for the control of thermal-energy processes, instruments for measuring mechanical magnitudes, instruments for navigation and piloting, and instruments of time (except watches and clocks). Cameras, X-ray equipment, and medical instruments are excluded. ^{27/} Because industrial electronic equipment is included in another category, the estimated value of production of this equipment was deducted from the total for instruments. The extension of the data for instruments to the years 1959 and 1960 is based on the 1960 report on plan fulfillment. ^{28/} The data for 1961 represent a plan figure. ^{29/}

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If the data on industrial electronic equipment are added to the data on the remaining types of equipment in the sample for the period 1955-58, the index for 1959, 1960, 1961, and 1965 is increased slightly, as shown by the following comparison:

	<u>Index (1958 = 100)</u>				
	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1965</u>
Index of producers equipment (from Table 5, p. 15, above)	100	114	124	138	210
Index of producers equipment, excluding instruments	100	113	120	132	206

The addition of the data on food processing, textile, and foundry equipment to the category of industrial equipment decreases the ratio between the indexes for 1958 and 1965, as shown in the following tabulation:

	<u>Index (1958 = 100)</u>	
	<u>1958</u>	<u>1965</u>
Index of industrial equipment, excluding instruments* (from Table 3, p. 12, above)	100	265
Index of industrial equipment, excluding instruments, food processing, textile, and foundry equipment	100	278

23. Spare Parts for Motor Vehicles, Tractors, and Agricultural Machinery

Centralized production of spare parts for motor vehicles, tractors, and agricultural machinery amounted to slightly more than 1 billion rubles in 1950. By mid-1958, production had risen to an annual rate of more than 5 billion rubles. 30/

Planned production in 1960 was 10.3 billion rubles, 31/ about 1.16 billion greater than in 1959, 32/ which would make production in 1959

* The category of instruments is excluded from the category of industrial equipment because there is no satisfactory method for allocating production between industrial and nonindustrial equipment.

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about 9.14 billion rubles. Production of spare parts for motor vehicles and tractors in 1959 was about 50 percent greater than in 1958 and for agricultural machinery was about 30 percent greater. ^{33/} It was estimated, on the basis of the above data, that production of spare parts for motor vehicles, tractors, and agricultural machinery was about 6.4 billion rubles in 1958.

It is expected that production of spare parts for motor vehicles will triple between 1958 and 1965. ^{34/} For the purpose of projection, it is estimated that production of spare parts for motor vehicles, tractors, and agricultural machinery combined by 1965 will increase to approximately 235 percent of production in 1958.

Estimates for 1955, 1956, 1957, and 1961 were derived by graphic methods.

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Table 3

Estimated Production of Industrial Equipment in the USSR a/*
1955-61 and 1965

Value Data in Million 1 July 1955 Rubles								
Type	1955	1956	1957	1958	1959	1960 b/	1961 b/	1965
1. Metalcutting machine tools	3,428.7	3,918.2	3,684.4	4,023.4	4,334.1	4,737.3	4,931.5	7,096.5
2. Metalforming machine tools	431.0	494.0	577.2	660.4	738.5	743.5	857.0	1,260.2
3. Metallurgical equipment	771.5	793.7	736.5	755.6	865.0	952.1	1,032.0	1,378.0
4. Coal combines	56.2	61.0	70.0	86.3	85.0	N.A.	N.A.	N.A.
5. Coal cutting machines	14.0	16.0	30.2	33.6	25.6	N.A.	N.A.	N.A.
6. Rock loading machines	100.4	117.8	115.3	130.9	142.5	N.A.	N.A.	N.A.
7. Electric mine locomotives	59.6	70.5	90.1	112.3	122.4	N.A.	N.A.	N.A.
8. Petroleum refining equipment	341.6	345.1	420.7	496.3	535.5	649.6	N.A.	N.A.
9. Deep well pumps	39.8	40.0	43.1	44.0	47.6	133.2 c/	N.A.	N.A.
10. Turbodrills	33.7	36.0	45.4	54.8	63.7		N.A.	N.A.
11. Chemical equipment	815	837	1,003	1,121	1,757	2,240	2,800	6,000 d/
12. Turbines	505.9	531.9	490.6	607.9	694.4	841.8	1,072.2	1,648.8
13. Steam boilers	203.3	196.6	187.5	192.5	199.9	N.A.	N.A.	N.A.
14. Turbogenerators	110.6	123.7	133.1	124.3	156.1	189.4	227.6	371.5
15. Electric motors	559.4	616.1	737.6	864.9	1,019.8	1,113.3	1,280.3	2,155.6
16. Power transformers	453.1	545.1	618.7	701.5	931.5	1,131.6	1,357.0	2,049.3
17. Electric bulbs	392.5	450.4	514.5	584.5	643.8	N.A.	N.A.	N.A.
18. Industrial electronic equipment	400.0	600.0	700.0	900.0	1,100.0	1,400.0	1,800.0	5,200.0
19. Equipment for light industry	327.9	328.1	358.9	341.7	418.7	N.A.	N.A.	N.A.
20. Total of lines 1 through 19	9,044.2	10,121.2	10,556.8	11,835.9	13,881.1			
21. Index of line 20 (1955 = 100)	100.0	111.9	116.7	130.9	153.5			
22. Total of lines 1-3, 8-12, 14-16, and 18 (1959 and 1960 only)					12,243.2	14,131.8		

* Footnotes for Table 3 follow on p. 19.

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Table 3
Estimated Production of Industrial Equipment in the USSR a/
1955-61 and 1965
(Continued)

Type	Value Data in Million 1 July 1955 Rubles						
	1955	1956	1957	1958	1959	1960 b/	1961 b/
23. Index of line 22 (1959 = 100)					100.0	115.4	
24. Total of lines 1-3, 11, 12, 14-16, and 18 (1958, 1960, 1961, and 1965 only)				9,759.0		13,349.0	15,357.6
25. Index of line 24 (1960 = 100)						100.0	115.0
26. Textile equipment				1,136.4			2,500.0
27. Food-processing equipment				1,795.5			3,950.0
28. Foundry equipment				157.1			385.0
29. Total of line 24, 26, 27 and 28				12,848.0			33,994.9
30. Index of line 29 (1958 = 100)				100.0			264.6
31. Index of industrial equipment production (excluding nonelectronic instruments) (1955 = 100)	100.0	111.9	116.7	130.9	153.5	177.1	203.7
32. Percentage increase above preceding year		11.9	4.3	12.2	17.3	15.4	15.0
							14.2 e/

a. For sources, see Table 6, p. 22, below, and the appropriate discussion in this appendix.

b. Preliminary and subject to revision.

c. Estimated at 20.5 percent of petroleum refining equipment.

d. Estimated in the range of 5 billion to 7 billion rubles. The mid-point of this range is used for computing indexes.

e. Average annual increase.

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Table 4

Estimated Production of Nonindustrial Producers Equipment in the USSR a/
1955-61 and 1965

Type	1955	1956	1957	1958	1959	1960 b/	1961 b/	1965
1. Civil communications equipment	1,300.0	1,300.0	1,600.0	1,900.0	2,200.0	2,500.0	2,700.0	4,000.0
2. Construction equipment	1,479.0	1,652.0	2,005.2	2,240.7	2,125.8	2,451.4	3,036.5 c/	5,042.8
3. Agricultural machinery and tractors	5,379.0	7,738.1	10,316.7	8,624.4	7,386.4	8,044.6	9,521.0	15,869.7
4. Agricultural machinery	2,457.9	4,188.9	6,328.5	4,267.2	3,177.2	3,342.4	4,305.1	7,192.9
5. Tractors	2,921.1	3,549.2	3,988.2	4,357.2	4,209.2	4,702.2	5,215.9	8,676.8
6. Transportation equipment	11,076.2	12,973.1	14,065.3	16,872.6	19,144.1	18,496.1	18,875.1	23,349.7
7. Motor vehicles	6,451.5	6,829.6	7,167.6	7,373.3	7,266.3	7,852.3	8,480.5 d/	11,094.8
8. Civil aircraft	590.0	1,500.0	2,200.0	3,700.0	5,000.0	3,500.0	2,500.0	3,000.0
9. Merchant shipbuilding	1,414.5	1,922.6	1,940.0	2,232.5	2,764.5	2,755.8	2,888.9	3,367.5
10. Mainline railroad equipment	2,620.2	2,720.9	2,757.7	3,566.8	4,113.3	4,388.0	5,005.7	5,887.4
11. Spare parts for motor vehicles, tractors, and agricultural machinery	3,500.0	4,000.0	4,800.0	6,400.0	9,140.0	10,300.0	11,240.0	15,000.0
12. Total nonindustrial producers equipment (excluding instruments)	22,734.2	27,663.2	32,787.2	36,037.7	39,996.3	41,792.1	45,372.6	63,262.2

a. For sources, see Table 6, p. 22, below, and the appropriate discussion in this appendix.

b. Preliminary and subject to revision.

c. Derived by a percentage increase based on a link from 1960 for excavators, bulldozers, tractors, scrapers, and motor rollers.

d. Estimated to be 108 percent of 1960 production.

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Table 5
Index of Producers Equipment for the USSR
1955-61 and 1965

	Value data in Million 1 July 1955 Rubles						
	1955	1956	1957	1958	1959	1960 a/	1961 a/
1. Nonindustrial producers equipment b/	22,734.2	27,663.2	32,787.2	36,037.7	39,996.3	41,792.1	45,372.6
2. Line 20 from Table 3	9,044.2	10,121.2	10,556.8	11,835.9	13,881.1		63,262.2
3. Total of lines 1 and 2	31,778.4	37,784.4	43,344.0	47,873.6	53,877.4		
4. Index of line 3 (1955 = 100)	100.0	118.9	136.4	150.6			
5. Instruments (except industrial electronic)				6,492.2	8,315.0	9,710.0	11,640.0
6. Total of lines 3 and 5				54,365.8	62,192.4		19,300.0
7. Index of line 6 (1958 = 100)				100.0	114.4		
8. Line 22 of Table 3					12,243.2	14,131.8	
9. Total of lines 1, 5, and 8					60,554.5	65,633.9	
10. Index of line 9 (1959 = 100)					100.0	108.4	
11. Line 24 from Table 3 (1960 and 1961 only)						13,349.0	15,357.6
12. Total of lines 1, 5, and 11						64,851.1	72,370.2
13. Index of line 12						100.0	111.6
14. Line 29 from Table 3				12,848.0			33,994.9
15. Total of lines 1, 5, and 14				55,377.7			116,557.1
16. Index of line 15 (1958 = 100)				100.0			210.5
17. Index of producers equipment production (1955 = 100)	100.0	118.9	136.4	150.6	172.3	186.8	208.5
18. Increase above preceding year (percent)		18.9	14.7	10.4	14.4	8.4	11.6
							11.0 c/

a. Preliminary and subject to revision.

b. Excluding instruments. Data are from Table 4, p. 20, above.

c. Average annual increase.

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Table 6

Estimated Production and Price Weights of Producers Equipment in the USSR a/*
1955-61 and 1965

Group	Unit of Measure	Price Weight per Physical Unit (1 July 1955 Rubles) b/	1955	1956	1957	1958	1959	1960 c/	1961 c/	1965
Metalcutting machine tools	Units	d/	117,087	124,048	131,006	138,290	147,079	153,700	160,000	200,000
Metalforming machine tools	Units	25,205	17,100	19,600	22,900	26,200	29,300	29,500	34,000	50,000
Metallurgical equipment	Metric tons		172,100	177,200	167,200	176,100	200,500	217,800	233,000	305,000
Rolling mill equipment	Metric tons	5,000	108,500	111,300	96,100	86,900	102,300	120,000	138,000	200,000
Other metallurgical equipment	Metric tons	3,600	63,600	65,900	71,100	89,200	98,200	97,800	95,000	105,000
Mining equipment										
Coal combines	Units	76,881	731	793	910	1,123	1,106	N.A.	N.A.	N.A.
Coal cutting machines	Units	34,500	405	463	875	973	741	N.A.	N.A.	N.A.
Rock loading machines	Units	51,116	1,965	2,304	2,255	2,561	2,787	N.A.	N.A.	N.A.
Electric mine locomotives	Units	32,819	1,816	2,147	2,744	3,421	3,729	N.A.	N.A.	N.A.
Petroleum equipment										
Petroleum refining equipment	Thousand metric tons	7,000	48.8	49.3	60.1	70.9	76.5	92.8	N.A.	N.A.
Deep well pumps	Thousand units	500	79.7	79.9	86.2	88.0	95.3	N.A.	N.A.	N.A.
Turbodrills	Units	13,000	2,589	2,772	3,489	4,213	4,898	N.A.	N.A.	N.A.
Power equipment										
Turbines	Thousand kilowatts	e/	5,560.9	5,848.4	5,370.5	6,647.0	7,594.0	9,200.0	11,760.0	18,000.0
Steam boilers	Thousand tons of steam per hour	f/	41.1	40.2	38.7	40.0	41.8	N.A.	N.A.	N.A.
Turbogenerators	Thousand kilowatts	g/	4,526	5,184	5,558	5,186	6,512	7,914	9,497	15,504
Electric motors (more than 100 kw)	Thousand kilowatts	h/	2,241	2,452	2,898	3,328	3,735	4,094	4,708	7,800
Electric motors (100 kilowatts and smaller)	Thousand kilowatts		6,578	7,330	8,802	10,370	12,361	13,482	15,504	26,100
Power transformers *	Million kilovolt amperes	23	19.7	23.7	26.9	30.5	40.5	49.2	59.0	80.1
Electric bulbs	Million units	1.1	356.8	409.5	467.7	531.4	585.3	N.A.	N.A.	N.A.

* Footnote for Table 6 follow on p. 25.

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Table 6

Estimated Production and Price Weights of Producers Equipment in the USSR a/
1955-61 and 1965
(Continued)

Group	Unit of Measure	Price Weight per Physical Unit (1 July 1955 Rubles) b/	1955	1956	1957	1958	1959	1960 c/	1961 c/	1965
Online railroad equipment										
Steam locomotives	Units	i/	654	490	0	0	0	0	0	0
Diesel locomotives	Units	i/	134	161	400	712	1,002	1,303	1,453	1,700
Electric locomotives	Units	i/	194	216	270	344	435	396	675	1,000
Freight cars	Thousand units	37,000	34.4	40.2	38.3	40.3	38.6	36.4	35.0	35.0
Passenger cars	Units	250,000	1,772	1,799	1,856	1,782	1,790	1,655	1,840	2,000
Reactors	Thousand units	j/	163.4	183.5	203.8	219.7	213.5	238.5	264.5	440.0
Equipment for light industry										
Ginning machines for cotton	Units	11,000	1,800	1,400	1,165	1,126	1,743	N.A.	N.A.	N.A.
Spinning machines	Units	35,000	2,040	1,666	1,877	1,065	2,328	N.A.	N.A.	N.A.
Reeling machines	Units	25,000	235	258	218	176	245	N.A.	N.A.	N.A.
Looms	Thousand units	7,000	16.0	14.0	14.5	14.4	16.0	16.4	N.A.	N.A.
Circular hosiery automatics	Units	6,700	918	1,430	1,612	1,024	1,063	N.A.	N.A.	N.A.
Industrial sewing machines	Thousand units	900	49.4	58.3	72.9	89.2	96.7	N.A.	N.A.	N.A.
Fleshing machines	Units	16,000	98	162	197	47	128	N.A.	N.A.	N.A.
Knitting machines	Units	14,000	222	160	200	181	143	N.A.	N.A.	N.A.
Type-setting machines	Units	21,500	457	579	681	858	1,001	N.A.	N.A.	N.A.
Flat-bed printing machines	Units	70,000	767	1,009	1,092	1,114	1,145	N.A.	N.A.	N.A.
Construction equipment										
Single-bucket excavators	Units	k/	4,524	6,254	8,640	9,189	9,135	10,900	15,265	24,400
Multi-bucket excavators	Units	56,000	726	530	895	976	1,075	1,390	13,150	18,900
Bulldozers	Units	6,300	7,511	9,520	10,429	10,963	11,264	11,200		

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Table 6

Estimated Production and Price Weights of Producers Equipment in the USSR a/
1955-61 and 1965
(Continued)

Group	Unit of Measure	Price Weight per Physical Unit (1 July 1955 Rubles) b/	1955	1956	1957	1958	1959	1960 c/	1961 c/	1965
Construction equipment (Continued)										
Tractor scrapers	Units	15,800	2,025	1,991	2,500	2,660	2,398	2,950	4,070	7,000
Motor graders	Units	62,400	1,014	1,646	2,064	2,663	2,835	3,135	N.A.	10,000
Towed graders	Units	38,600	1,150	1,810	2,025	1,950	1,900	1,850	N.A.	2,500
Truck cranes	Units	22,200	5,505	5,590	6,270	6,867	7,056	8,040	N.A.	10,000
Tower cranes	Units	101,000	3,329	2,845	3,470	4,221	2,540	2,740	N.A.	4,000
Pneumatic-tire cranes	Units	202,100	112	261	404	475	693	800	N.A.	3,000
Motor rollers	Units	15,900	1,424	1,389	1,460	1,530	1,610	1,690	1,775	2,160
Agricultural machinery										
Grain combines (tractor-drawn and self-propelled)	Thousand units	1/	48.0	81.8	131.5	65.0	54.7	59.0	76.3	138.
Corn combines	Units	14,900	4,011	14,200	31,400	6,100	200	N.A.	N.A.	N.A.
Beet combines	Units	10,900	7,072	8,000	8,600	7,300	4,900	4,700	N.A.	N.A.
Forage combines	Units	16,600	7,097	32,000	54,800	38,100	12,600	16,000	30,000	47,500
Cotton pickers	Units	22,700	555	885	150	0	486	3,184	5,000	17,500
Windrowers	Units	4,200	2,425	81,200	144,600	96,300	55,300	N.A.	N.A.	N.A.
Pickups (for grain combines)	Units	950	96,000	198,000	184,000	91,100	67,833	N.A.	N.A.	N.A.
Plows (moldboard, tractor-drawn and mounted)	Thousand units	2,150	103.2	123.5	127.8	164.0	154.9	148.4	N.A.	157.
Harrow plows (tractor-drawn)	Thousand units	3,000	29.0	16.5	18.5	26.9	20.9	N.A.	N.A.	N.A.
Harrow (tractor-drawn)	Thousand units	2,000	9.7	10.1	11.4	14.0	19.4	N.A.	N.A.	N.A.
Cultivators (tractor-drawn and mounted)	Thousand units	1,600	112.6	149.6	208.1	180.3	121.5	83.5	N.A.	100
Sowing machines (tractor-drawn and mounted)	Units	2,000	123,300	199,400	278,100	218,300	136,700	123,000	N.A.	140,500

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Table 6
Estimated Production and Price Weights of Producers Equipment in the USSR a/
1955-61 and 1965
(Continued)

Group	Unit of Measure	Price Weight per Physical Unit (1 July 1955 Rubles) b/	1955	1956	1957	1958	1959	1960 c/	1961 c/	1965
Agricultural machinery (Continued)										
Potato planters (tractor-drawn)	Units	4,400	24,200	6,600	9,300	5,000	1,400	N.A.	N.A.	N.A.
Mowing machines (tractor-drawn and mounted)	Thousand units	3,000	22.6	27.2	46.4	76.5	83.8	N.A.	N.A.	N.A.
Rakes (tractor-drawn and mounted)	Thousand units	2,600	25.6	11.0	3.1	11.1	14.5	N.A.	N.A.	N.A.
Threshing machines (complex and semicomplex)	Thousand units	5,000	3.8	3.4	6.5	10.2	6.3	N.A.	N.A.	N.A.
Grain cleaning machines	Thousand units	5,000	10.1	10.0	10.0	12.1	15.6	N.A.	N.A.	N.A.
Straw and silage cutters	Thousand units	1,500	47.0	33.6	33.8	31.7	22.5	N.A.	N.A.	N.A.
Motor vehicles	Thousand units	m/	445.3	464.6	495.4	511.1	495.0	523.6	N.A.	750.9
Trucks and buses	Thousand units	m/	337.5	366.8	381.8	388.9	370.5	384.8	N.A.	550.0
Passenger cars	Thousand units	m/	107.8	97.8	113.6	122.2	124.5	138.8	N.A.	200.0

For sources, see the appropriate discussion in this appendix.

a. Prices are average unit prices unless otherwise indicated.

b. Preliminary and subject to revision.

See Table 7, p. 26, below.

c. For steam turbines, 95 rubles per kilowatt of capacity, and for hydraulic turbines, 80 rubles per kilowatt.

d. Production of steam boilers is divided into three classes with the following estimated average prices: high capacity, 3,635 rubles (per ton of steam per hour); medium capacity, 5,705 rubles; and low capacity, 7,769 rubles.

e. Generators for steam turbines, 21 rubles per kilowatt, and generators for hydraulic turbines, 32 rubles per kilowatt.

f. In 1955, 50 rubles per kilowatt and 48 rubles for succeeding years.

See Table 8, p. 27, below.

See Table 9, p. 28, below.

See Table 11, p. 32, below.

Tractor-drawn, 17,800 rubles per unit, and self-propelled, 23,200 rubles per unit.

See Table 10, p. 29, below.

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Table 7

Estimated Production and Price Weights of Metalcutting Machine Tools in the USSR, by Type a/
1955-61 and 1965

Type	Price Weight per Physical Unit (1 July 1955 Rubles)	Units							
		1955	1956	1957	1958	1959	1960 b/	1961 b/	1965
Lathes	30,500	31,292	30,073	33,385	34,105	36,795	38,000	N.A.	41,400
Turret lathes	8,400	2,825	2,619	2,859	2,986	3,474	3,600	N.A.	8,400
Automatic and semiautomatic lathes	30,000	1,524	1,798	2,752	3,280	3,512	3,650	N.A.	7,000
Milling machines	35,100	7,339	8,596	11,466	13,295	14,378	15,200	N.A.	25,400
Gear cutting machines	40,400	1,973	2,390	2,753	2,427	3,001	3,350	N.A.	N.A.
Boring machines	91,300	643	678	770	864	1,052	1,250	N.A.	3,400
Planers	155,000	453	429	460	480	328	350	N.A.	4,400 c/
Shapers	13,300	3,559	3,504	3,391	3,430	2,896	2,250	N.A.	N.A.
Slotters	30,800	505	661	643	677	497	450	N.A.	N.A.
Broaching machines	38,700	307	332	480	515	587	550	N.A.	N.A.
Grinding machines	39,400	3,959	5,225	5,940	6,709	7,062	8,700	N.A.	17,200
Tool grinders	7,200	1,864	2,507	3,156	3,249	3,831	3,800	N.A.	N.A.
Vertical drills	5,300	24,921	23,688	30,673	30,367	31,693	30,400	N.A.	28,200 d/
Radial drills	17,600	2,000	2,311	2,828	3,010	3,518	3,800	N.A.	N.A.
Special, specialized, and unit-type tools	75,000	16,685	22,044	14,924	17,412	19,338	22,450	N.A.	38,000
Other	e/	17,238	17,193	14,526	15,484	15,117	15,900	N.A.	26,600
Total metalcutting machine tools		117,087	124,048	131,006	138,290	147,079	153,700	160,000 f/	200,000

a. For sources, see the appropriate discussion in this appendix.

b. Preliminary and subject to revision.

c. Assumed weighted average price of 32,143 rubles, the same as in 1960 for the three categories.

d. Assumed weighted average price of 6,667 rubles, the same as in 1960 for the two categories.

e. Estimated average price for 1955-60 of 16,000 rubles. Assumed weighted average price for 1965 of 18,576 rubles, the same as in 1960 for gear-cutting machines, broaching machines, tool grinders, and other machine tools.

f. Assumed weighted average price of 30,822 rubles, the same as in 1960 for all categories.

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Table 8

Estimated Production and Price Weights of Mainline Locomotives in the USSR, by Type and Model a/
1955-61 and 1965

Type and Model	Price Weight per Physical Unit (Thousand 1 July 1955 Rubles)		Units					
	1955	1956	1957	1958	1959	1960 b/	1961 b/	1965
Diesel								
TE-2	132	0	0	0	0	0	0	0
TE-3	2	159	382	712	998	1,296	N.A.	N.A.
TE-7	0	2	18	0	0	0	N.A.	N.A.
TE-50	0	0	0	0	1	0	N.A.	N.A.
TEK-60	0	0	0	0	0	2	N.A.	N.A.
TEP-60	0	0	0	0	0	1	N.A.	N.A.
GI-01 c/	0	0	0	0	1	1	N.A.	N.A.
TG-100 d/	0	0	0	0	2	0	N.A.	N.A.
TG-102 e/	0	0	0	0	0	3	N.A.	N.A.
Total	134	161	400	712	1,002	1,303	1,453 e/	1,700 e/
Electric								
VL 22M	187	193	239	48	0	0	0	0
VL 23	0	10	0	107	187	90	N.A.	N.A.
N-0	4	1	3	0	0	0	N.A.	N.A.
N-8	3	12	27	188	244	175	N.A.	N.A.
N-60	0	0	1	1	4	131	N.A.	N.A.
Total	194	216	270	344	435	396	675 f/	1,000 f/
Steam								
P-36	138	88	0	0	0	0	0	0
IV	516	402	0	0	0	0	0	0
Total	654	490	0	0	0	0	0	0
Total mainline locomotives	982	867	670	1,056	1,437	1,699	2,128	2,700

a. For sources, see the appropriate discussion in this appendix.

b. Preliminary and subject to revision.

c. A gas-turbine model, counted with diesels.

d. Diesel hydraulic models in two sections, each counted as one.

e. Estimated average price of 1,598,500 rubles, the same as in 1960.

f. Estimated average price of 1,375,000 rubles, the same as in 1960.

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Table 9

Estimated Production and Price Weights of Tractors in the USSR, by Model a/
1955-61 and 1965

Model	Price Weight per Physical Unit (1 July 1955 Rubles)	Thousand Units						
		1955	1956	1957	1958	1959	1960 b/	1961 b/
DT-54	16,200	61.7	64.2	65.4	67.0	N.A.	N.A.	N.A.
KD-35	16,200	2.3	0	0	0	0	0	0
KDP-35	18,250	11.8	16.0	18.2	11.5	N.A.	N.A.	N.A.
KT-12A	24,900	5.4	0	0	0	0	0	0
S-80	32,200	18.0	17.5	22.0	21.0	N.A.	N.A.	N.A.
DT-55, 57 and 61; GB-58	17,500	1.3	3.5	4.0	4.7	N.A.	N.A.	N.A.
KMTZ-20	17,000	0	1.7	0	0	0	0	0
T-DT-40 and 60	26,000	0	4.9	6.2	5.5	N.A.	N.A.	N.A.
S-100	40,000	0	0.1	0	5.6	N.A.	N.A.	N.A.
KDP-38	18,000	0	0	0	3.0	N.A.	N.A.	N.A.
U-1 and 3	8,000	16.0	0	0	0	0	0	0
KMTZ-7	9,400	17.0	0	0	0	0	0	0
Belarus (MTZ-1 and 2)	22,000	27.9	45.1	48.0	55.0	N.A.	N.A.	N.A.
DT-24	19,500	1.0	12.0	18.0	8.0	N.A.	N.A.	N.A.
DT-14	11,000	1.0	17.0	17.0	13.0	N.A.	N.A.	N.A.
DSSh-14	12,600	0	1.5	5.0	7.5	N.A.	N.A.	N.A.
DT-28	19,000	0	0	0	9.0	N.A.	N.A.	N.A.
DT-20	12,000	0	0	0	9.0	N.A.	N.A.	N.A.
Total tracklaying tractors	21,000 c/	100.5	109.3	118.3	118.3	103.8	116.0	N.A.
Total wheeled tractors	18,500 c/	62.9	74.3	85.5	101.5	109.7	122.5	N.A.
Total tractors d/	19,720 e/	163.4	183.5	203.8	219.7	213.5	238.5	440.0

a. For sources, see the appropriate discussion in this appendix.

b. Preliminary and subject to revision.

c. Price for 1959 and 1960 only.

d. Because of rounding, components may not add to the totals shown.

e. Price for 1961 and 1965 only.

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Table 10
Estimated Production and Price Weights of Motor Vehicles in the USSR, by Model a/*
1955-61 and 1965

Type and Model	Price Weight per Physical Unit (1 July 1955 Rubles)	Thousand Units					
		1955	1956	1957	1958	1959	1960 b/ 1961 b/ 1965
Trucks							
GAZ-51	10,500	114.9	131.5	141.3	142.0	138.1	N.A.
GAZ-63	13,300	25.1	27.6	30.4	33.4	33.4	N.A.
ZIS-150	13,700	60.5	0	0	0	0	0
ZIS-151	21,250	26.0	0	0	0	0	0
YaAZ-210	64,000	2.6	3.2	3.2	0	0	0
Ural ZIS-355, 355M, and 356	13,200	33.2	27.6	30.0	35.3	31.5	N.A.
MAZ-200	35,200	6.3	12.1	7.7	8.1	8.1	N.A.
MAZ-205	35,200	5.8	1.5	7.0	7.5	8.0	N.A.
MAZ-525	300,000	0.8	0.7	0.4	0.4	0.7	N.A.
KAZ-585-B and 585-V	15,200	4.6	5.8	5.7	5.7	0	0
GAZ-93	12,400	19.2	21.5	21.9	18.8	11.1	N.A.
ZIL-150	13,700	0	64.0	46.2	0	0	0
ZIL-164	13,700	0	0	13.7	60.0	55.0	N.A.
ZIL-151 and 157	21,250	0	30.0	30.0	28.0	27.0	N.A.
YaAZ-214	50,000	0	0	0.4	0	0.4	N.A.
YaAZ-219, 221 and 222	64,000	0	0	0	3.0	2.6	N.A.
ZIS-585 and ZIS-MMZ-585	15,200	30.0	32.0	33.0	34.0	34.0	N.A.
MAZ-501	40,000	0	0.1	0.2	0.3	0.5	N.A.
MAZ-502	40,000	0	0	0.2	0.2	0.5	N.A.
KAZ-120	15,200	0	Negl.	0.1	0.1	0.1	N.A.
KAZ-601B	15,200	0	Negl.	0.1	0.1	0.1	N.A.
KAZ-600	15,200	0	Negl.	0.1	0.3	5.9	N.A.
UAZ-450 series	28,000	0	0	0	0.5	1.0	N.A.
Total trucks		329.0	357.6	371.6	377.7	358.0	N.A.

* Footnotes for Table 10 follow on p. 31.

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Table 10

Estimated Production and Price Weights of Motor Vehicles in the USSR, by Model a/
1955-61 and 1965
(Continued)

Type and Model	Price Weight per Physical Unit (1 July 1955 Rubles)	Thousand Units							
		1955	1956	1957	1958	1959	1960 b/	1961 b/	1965
Buses									
ZIS-155	38,200	4.0	4.0	3.0	0	0	0	0	0
PAZ-651	24,700	4.4	4.8	4.9	4.6	4.6	4.0	N.A.	N.A.
RAF-251	24,700	0.1	0.3	0.4	0.5	0.5	0.6	N.A.	N.A.
ZIL-158	38,200	0	0	1.0	4.1	3.7	0	0	0
ZIL-127	38,200	0	0.1	0.3	0.3	0.5	1.0	N.A.	N.A.
PAZ-652	24,700	0	0	Negl.	0.1	0.1	0.7	N.A.	N.A.
LAZ-695	38,200	0	Negl.	0.4	1.0	1.5	2.0	N.A.	N.A.
KAG-3	24,700	0	0	0.2	0.3	0.3	0.3	N.A.	N.A.
KZA-651	24,700	0	0	Negl.	0.3	0.8	3.5	N.A.	N.A.
TA-6	24,700	0	0	0	0	0.2	0.2	N.A.	N.A.
LIAZ-158	38,200	0	0	0	0	0.3	2.7	N.A.	N.A.
Total buses		8.5	9.2	10.2	11.2	12.5	15.0	N.A.	N.A.
Total trucks and buses	16,175 c/	337.5	366.8	381.8	388.9	370.5	384.8	N.A.	550.0
Passenger cars									
Pobeda M-72 sedan	12,100	33.0	29.0	26.0	15.2	0	0	0	0
GAZ-69 and 69-A jeep	12,700	22.0	23.2	25.0	26.0	26.8	26.8	N.A.	31.0
ZIM limousine	31,200	3.6	4.0	3.2	2.0	0.3	0.3	N.A.	4.0
ZIS limousine	85,500	0.3	0.3	0.3	0.3	0.3	0.3	N.A.	Negl.
Moskvich-400 sedan	8,450	46.2	17.3	0	0	0	0	0	0

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Table 10

Estimated Production and Price Weights of Motor Vehicles in the USSR, by Model a/
1955-61 and 1965
(Continued)

Type and Model	Price Weight per Physical Unit (1 July 1955 Rubles)	Thousand Units							
		1955	1956	1957	1958	1960 b/	1961 b/	1961	1965
Passenger cars (Continued)									
Moskvich station wagon	9,000	2.7	0.3	0	0	0	0	0	0
Moskvich 402-407, 410-423, 411, and 430	10,000	0	23.7	52.8	53.0	58.9	63.3	N.A.	100.0
Volga	13,000	0	Negl.	6.3	25.7	38.2	47.1	N.A.	35.0
Microliter cars (ZAZ)	7,500	0	0	0	0	0	1.0	N.A.	30.0
Total passenger cars		107.8	27.8	113.6	122.2	124.5	138.8	N.A.	200.0
Total motor vehicles		445.3	464.6	495.4	511.1	495.0	523.6	N.A.	750.0

a. For sources, see the appropriate discussion in this appendix.

b. Preliminary and subject to revision.

c. Assumed average 1965 price of 16,175 rubles, the same as in 1960.

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Table 11

Estimated Production and Price Weights of Excavators in the USSR a/
1955-61 and 1965

Type and Size	Price Weight per Physical Unit (Thousand 1 July 1955 Rubles) b/	Units							
		1955	1956	1957	1958	1959	1960 c/	1961 c/	1965
Up to 0.15 cubic meters	40.2	175	1,559	3,429	3,519	N.A.	N.A.	N.A.	N.A.
0.25 to 0.30 cubic meters	75.0	905	678	1,270	1,434	N.A.	N.A.	N.A.	N.A.
0.35 to 0.80 cubic meters	83.5	2,559	3,115	2,941	3,252	N.A.	N.A.	N.A.	N.A.
1.00 to 1.25 cubic meters	150.0	650	618	680	603	N.A.	N.A.	N.A.	N.A.
2.00 cubic meters	131.0	12	21	40	60	N.A.	N.A.	N.A.	N.A.
3.00 to 8.00 cubic meters	1,500.0	220	262	275	317	N.A.	N.A.	N.A.	N.A.
10.0 cubic meters and more	10,000.0	3	1	5	4	N.A.	N.A.	N.A.	N.A.
Total single-bucket excavators	d/	4,524	6,254	8,640	9,189	9,135	10,900	N.A.	N.A.
Total multibucket excavators	56.0	726	530	895	976	1,075	1,390	N.A.	N.A.
Total excavators	e/	5,250	6,784	9,535	10,165	10,210	12,290	15,265	24,400

a. For sources, see the appropriate discussion in this appendix.

b. Prices are net of values of tractors, trucks, or engines that are used as mounts or components of completed excavators.

c. Preliminary and subject to revision.

d. Estimated net unit value in 1959 and 1960 of 123,448 rubles, the same as in 1958.

e. Estimated net unit value in 1961 and 1965 of 115,820 rubles, the same as in 1960.

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